

# One Health and EcoHealth in Asia

*Hung Nguyen-Viet, ILRI and HUPH*

11 September 2018, Bologna



RESEARCH  
PROGRAM ON  
Agriculture for  
Nutrition  
and Health

Led by IFPRI



# Good environment to practice Ecohealth and One Health!



**ILRI**  
INTERNATIONAL  
LIVESTOCK RESEARCH  
INSTITUTE



**Hanoi University of Public Health** ([www.huph.edu.vn](http://www.huph.edu.vn))

**Swiss TPH** 

Swiss Tropical and Public Health Institute  
Schweizerisches Tropen- und Public Health-Institut  
Institut Tropical et de Santé Publique Suisse

Associated Institute of the University of Basel

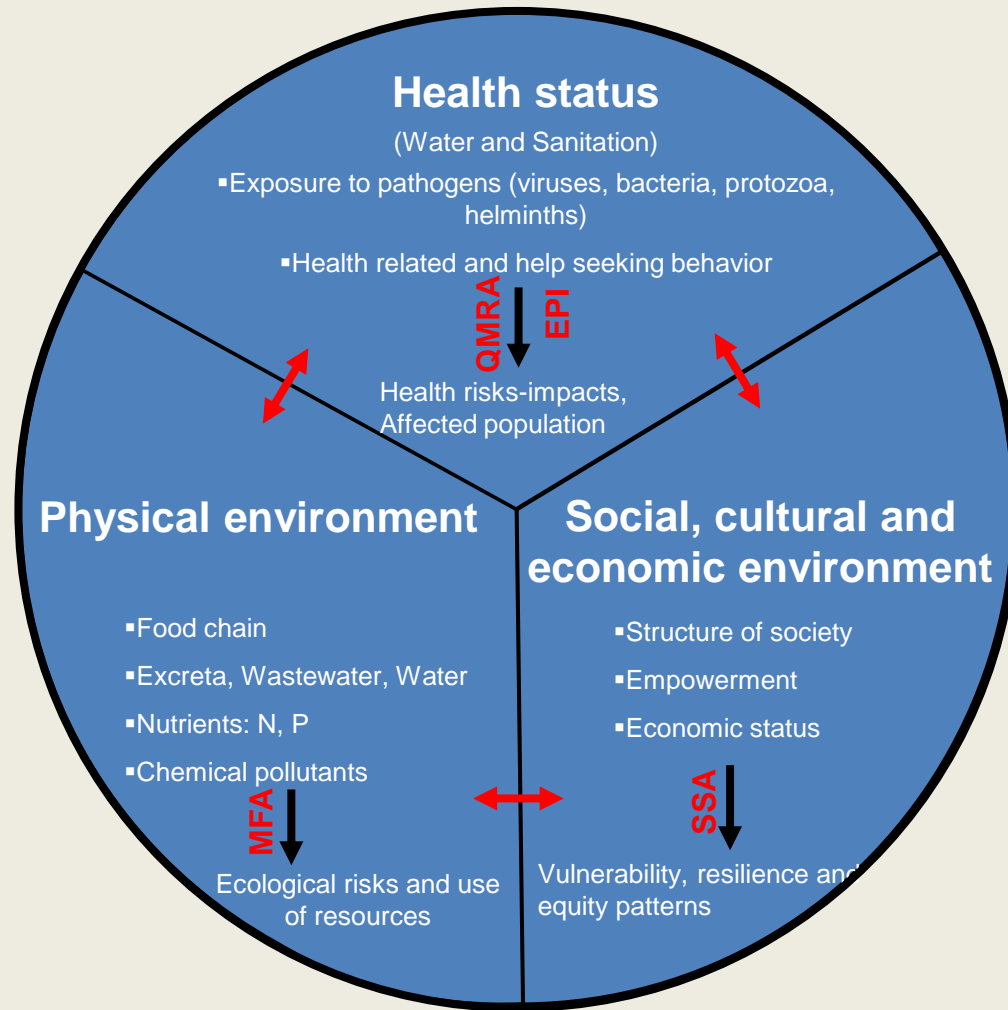
**CHRONO  
ENVIRONNEMENT**

**UFC**  
UNIVERSITÉ  
DE FRANCHE-COMTÉ



**Analysis of interrelations between environmental sanitation systems, health status and well-being**

**Dynamic interactions**  
between systems and interventions



**Critical control points: comprehensive biomedical, epidemiological, ecological, social, cultural and economic assessment**

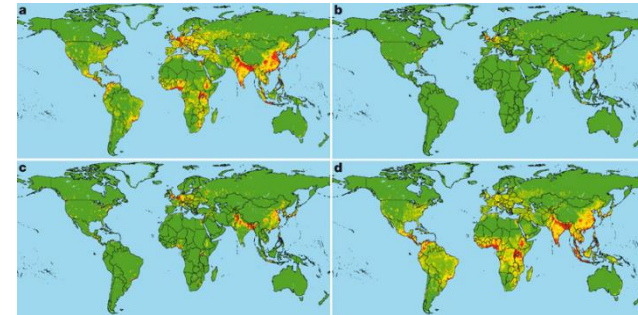
**Interventions (biomedical, systems, engineering, behavioral or in combination):**  
**Efficacy, effectiveness and equity studies** measured in relation to risks

# Outline

1. Context in Asia
2. Major OH/EH programs in (SE) Asia
3. Some evaluations and impacts
4. Reflections and conclusions

# Challenges in Asia

- Population and economic growth, environmental issues, intensive agriculture and livestock, food security, nutrition, politics...
- Complex health issues (EID, AMR, NCD...) need innovative, integrated approaches.
- Strengthening the capacity of professionals working in the human, animal and environmental health sectors to respond to, control and prevent outbreaks of EID is vital.
- Need to widen scope: Looking beyond HPAI, “Systems” approach vs. focus on specific diseases, animal health / human health





# Outline

1. Context in Asia
2. Major OH/EH programs in (SE) Asia
3. Some evaluations and impacts
4. Reflections and conclusions



SCOPING REVIEW

Open Access

# Ecohealth research in Southeast Asia: past, present and the way forward

Hung Nguyen-Viet<sup>1,2,3,4\*</sup>, Siobhan Doria<sup>1</sup>, Dinh Xuan Tung<sup>5</sup>, Hein Mallee<sup>6</sup>, Bruce A Wilcox<sup>7,8</sup> and Delia Grace<sup>9</sup>

ECOHEALTH

© 2015 International Association for Ecology and Health

## Toward Operational Criteria for Ecosystem Approaches to Health

Carsten H. Richter,<sup>1,2</sup> Jennifer A. Steele,<sup>3</sup> Hung Nguyen-Viet,<sup>4,5</sup> Jianchu Xu,<sup>6</sup>  
and Bruce A. Wilcox<sup>7</sup>

# One Health and Ecohealth programs in SEA



- INDOHUN
- THOHUN
- VOHUN
- MYOHUN



Swiss TPH



Emerging Pandemic Threats Program

PREDICT • RESPOND • PREVENT • IDENTIFY

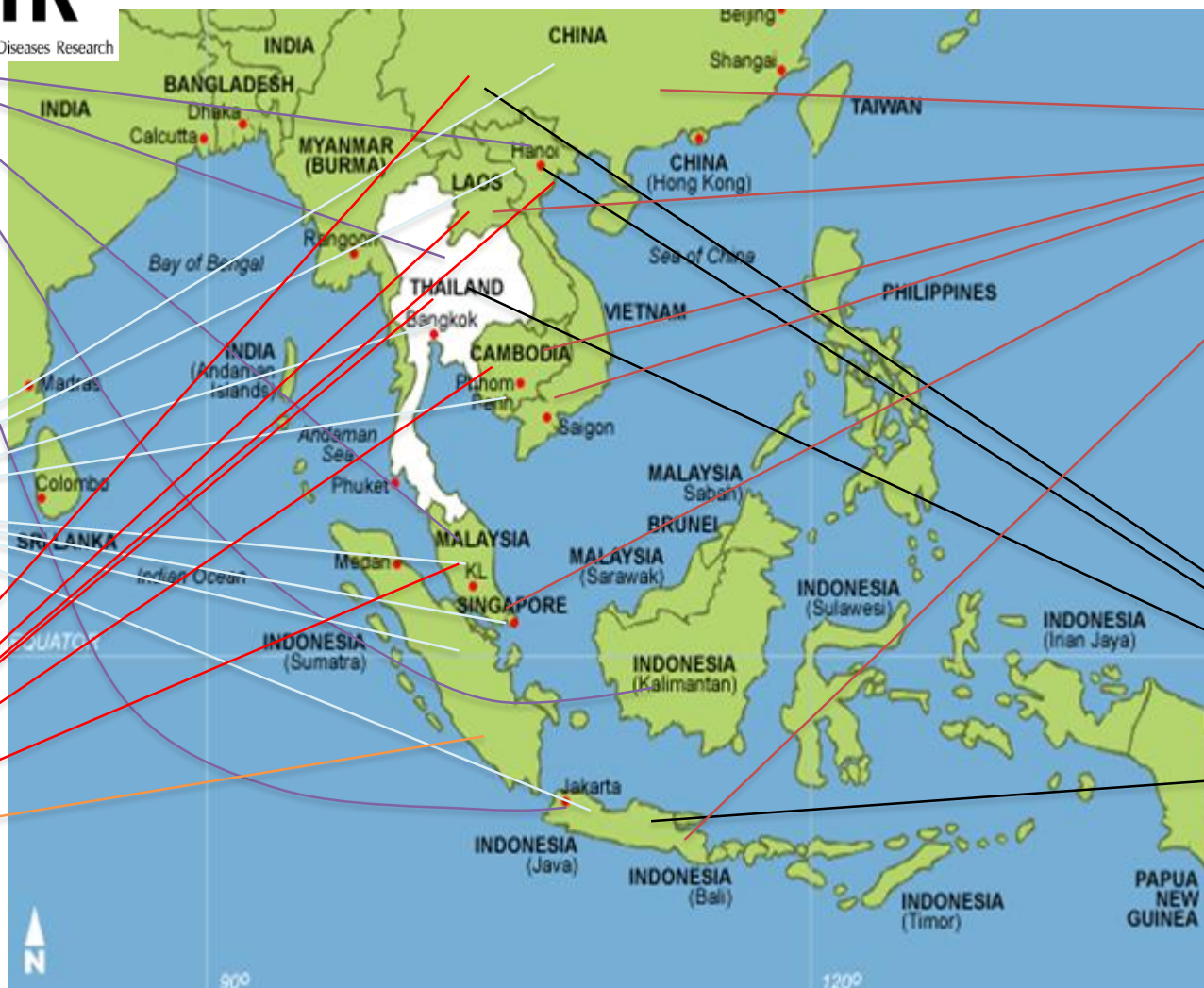




**AMR**

**EID  
surveillance**

**EcoEID**



*Main ecohealth projects in South East Asia, December 2017*

# Major Ecohealth projects in SE Asia

Project name	Countries involved	Field	Donor
Asia Partnership on Emerging Infectious Diseases Research (APEIR)	Thailand, Vietnam, Indonesia, China, Laos, Malaysia	EIDs	IDRC
Ecohealth Emerging Infectious Diseases Research Initiative (EcoEID)	Thailand, Vietnam, Indonesia, China, Laos, Philippines	EIDs	IDRC/DFATD /AUSAID
Ecosystem Approaches to the Better Management of Zoonotic Emerging Infectious Diseases in the Southeast Asia Region (EcoZD)	Vietnam, Laos, Cambodia, Indonesia, China, Thailand	EIDs	IDRC
Eco-Bio-Social dengue control programmes	Thailand, Vietnam, Indonesia, China, Laos, Philippines	Dengue	IDRC/WHO
Lawa Model: Integrated Opisthorchiasis Control in Northeast Thailand	Thailand	O. viverrini	IDRC
The Research Institute for Humanity and Nature (RIHN) project	Lao PDR, Vietnam, Bangladesh, Yunnan China	EIDs	IDRC
Building Ecohealth Capacity in Asia (BECA)	Thailand, Laos, Cambodia, Vietnam, China	EIDs	RIHN
The Field Building Leadership Initiative in Southeast Asia (FBLI)	Thailand, Indonesia, Vietnam, China	Ag & Health	IDRC
Integrated assessment of environmental sanitation and health (NCCR North–south)	Vietnam, Thailand	Ag & Health	SDC
Land Use Change and Human Health in the Eastern Himalayas: An Adaptive Ecosystem Approach	Nepal, Yunnan Province, Tibetan Autonomous Region of China	Ag & Health	IDRC

# Types and areas of Ecohealth projects

## Types of projects:

- Research
- Research and capacity building
- Operational research

## Areas

- Ecohealth and emerging infectious research and policy
- Ecohealth and agricultural intensification, and environment and climate change
- Network development, capacity building and training

# *APEIR: Asia Partnership on EIDs Research*

- APEIR is a research partnership (>30 institutions in 6 countries...)
- APEIR was initially established in 2007 in response to the spread of HPAI in the region. Since 2009 it has considered a wider range of diseases - EIDs.



Five studies on AI  
Multi-country teams for each study

## **In the past....**

- i. Migratory birds & AI network
- ii. Socio-economic impacts of AI
- iii. Backyard poultry systems & AI
- iv. Policy analysis
- v. Effectiveness of AI control measures

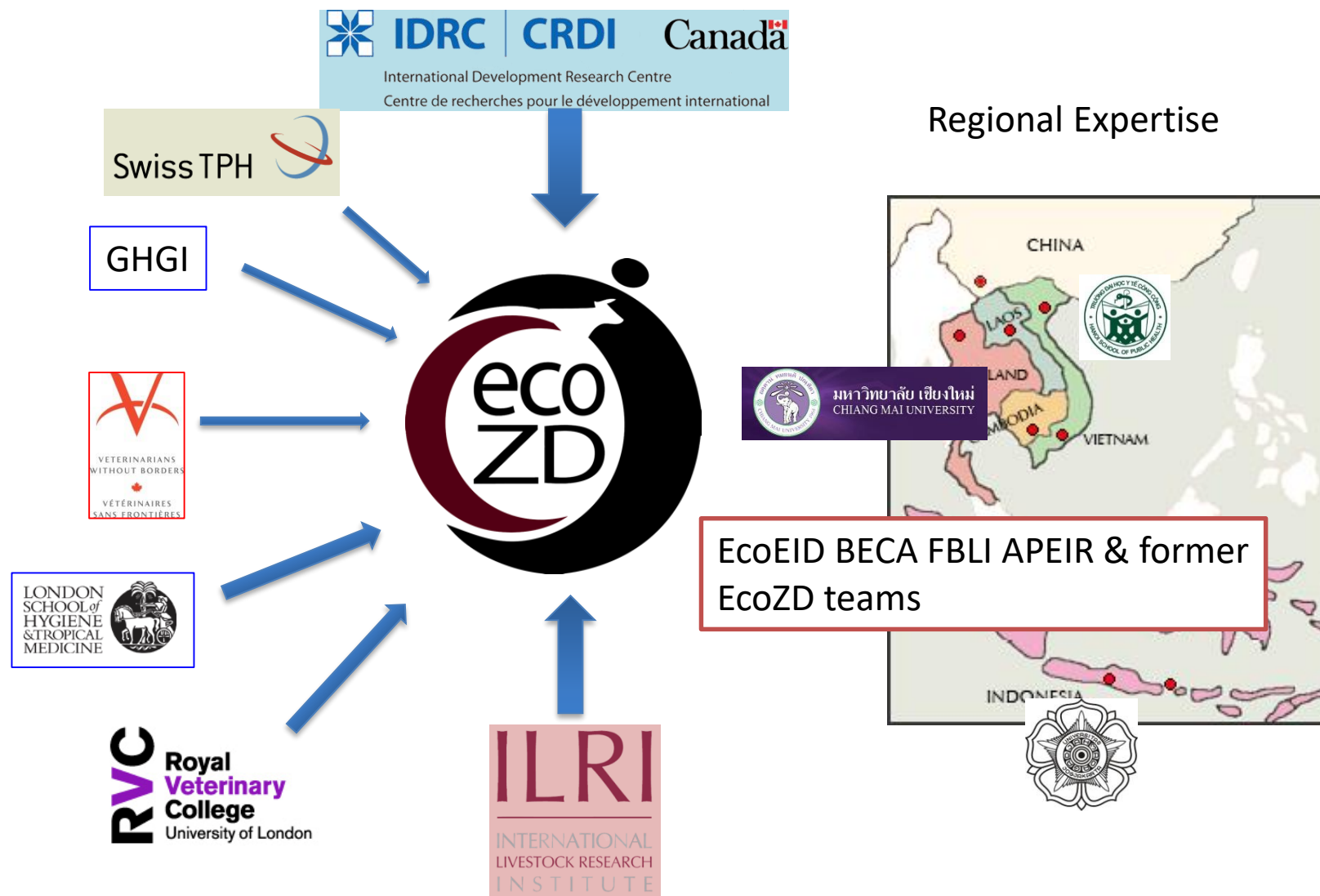
## **In recent years**

- i. Poultry Production Clusters
- ii. Small-Scale Poultry Slaughter Houses

## **Follow-up**

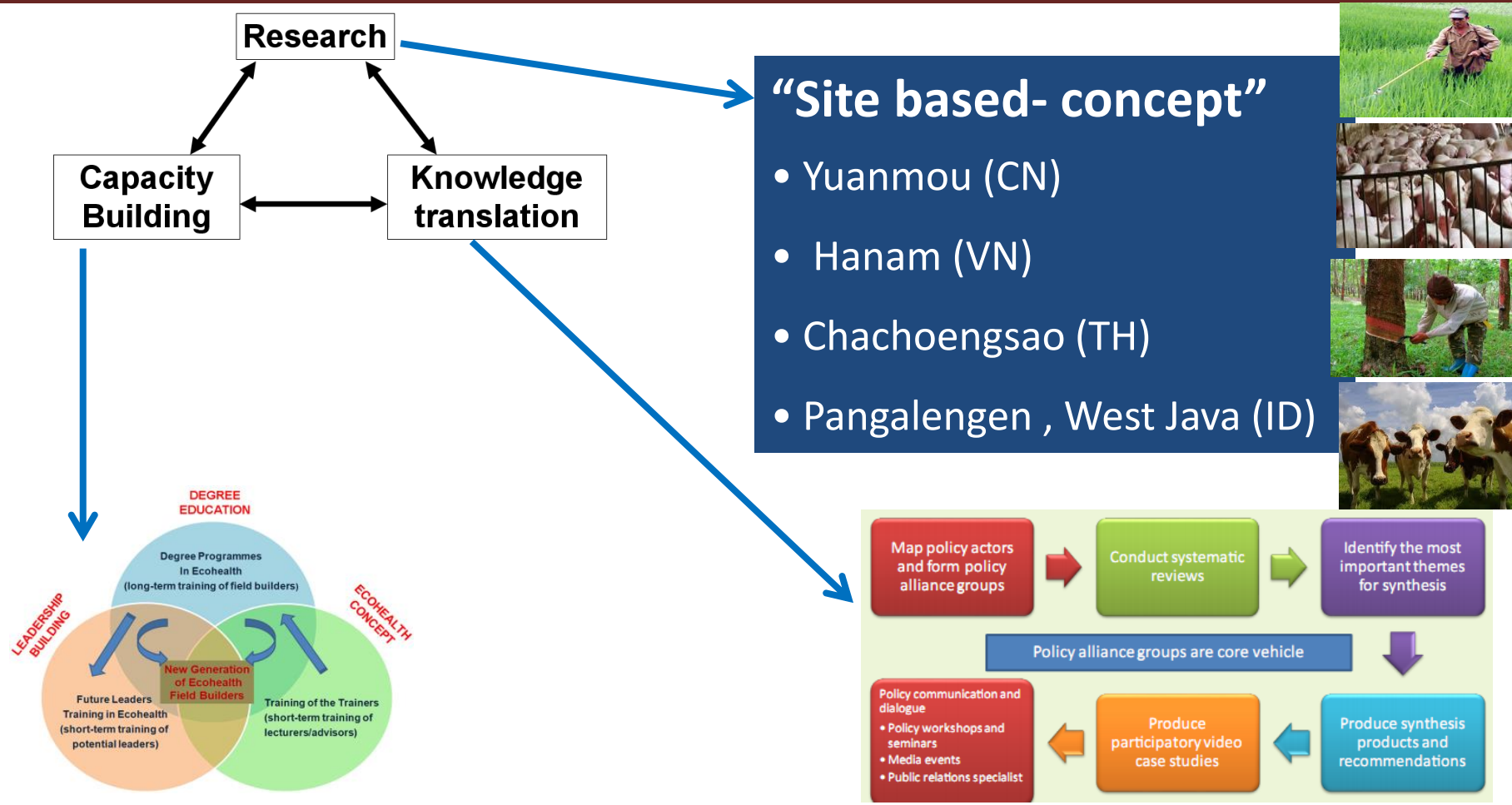
- i. AMR
- ii. Wildlife

# *Ecosystem Approaches to the Better Management of Zoonotic Emerging Infectious Diseases in Southeast Asia (EcoZD)*





# Ecohealth Field Building Leadership Initiative in SEA: FBII – Agriculture Intensification & Health



# EcoHealth prudent use of antimicrobial in SEA





# Sustain the control liver-fluke infections in Mekong Region, by packaged strategy (integrated model)

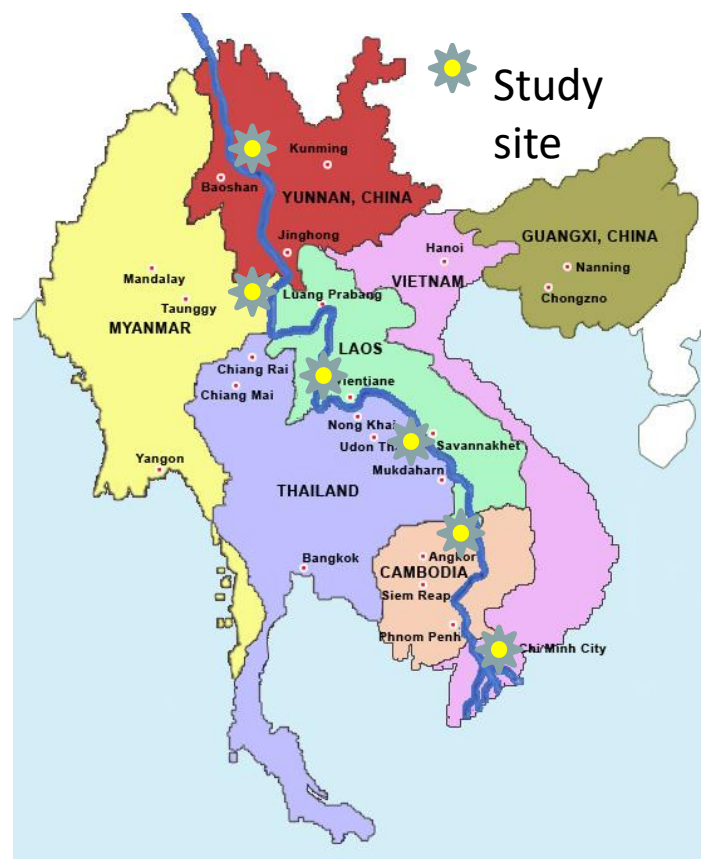


Fig. 1. Map of six study sites along the Mekong River



## **Mission:**

To link and empower leading Universities in Southeast Asia to generate Social and Intellectual Capital on One Health against Infectious and Zoonotic diseases

A consortium of universities that are collaborating to build One Health capacity and academic partnerships with government, national and regional stakeholders in the Southeast Asian region.



OneHealth  
WORKFORCE



SEAOHUN  
South East Asia One Health  
University Network

Established in 2011

**indohun**  
INDONESIAN ONE HEALTH UNIVERSITY NETWORK

20 universities,  
34 schools/faculties



17 universities,  
23 schools/faculties



10 universities,  
42 schools/faculties



20 universities,  
21 schools/faculties

IN APRIL 2018, 67 UNIVERSITIES, 120 SCHOOLS/FACULTIES



Conduct OH activities in Cambodia, Myanmar, and Lao PDR but with no formal network.



Collective results as of 2017




Multi-Sectoral Engagement

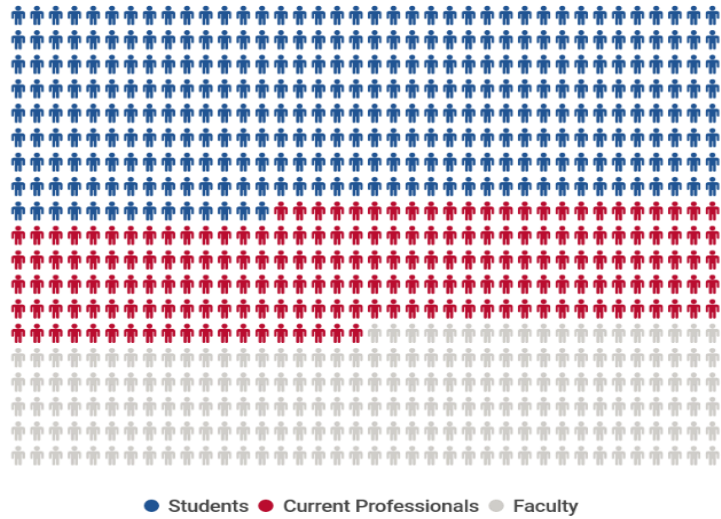
-  **49** Community Outreach Activities
-  **2** One Health Policy Papers
-  **37** Multi-Sectoral & Multi-Lateral Events Coordinated
-  **15** Evidence-Based Materials Created

Institutional Strengthening

-  Over **1,700** faculty have attended trainings and professional development
-  **115** schools are members in the One Health University Networks
-  **6** operations manuals & implementation tools created

Education & Training

-  Over **6,000** students, current professionals, and faculty members have attended trainings
-  **24** One Health Fellows have been placed in organizations





Hanoi:

- Hanoi School of Public Health
- Hanoi Medical University
- Hanoi University of Agriculture

Bac Giang Agriculture and Forestry University

- Thai Nguyen University of Medicine & Pharmacy
- Thai Nguyen University of Agriculture & Forestry

Hai Phong Medical University

Thai Binh University of Medicine

Nam Dinh University of Nursing

Vinh Medical University

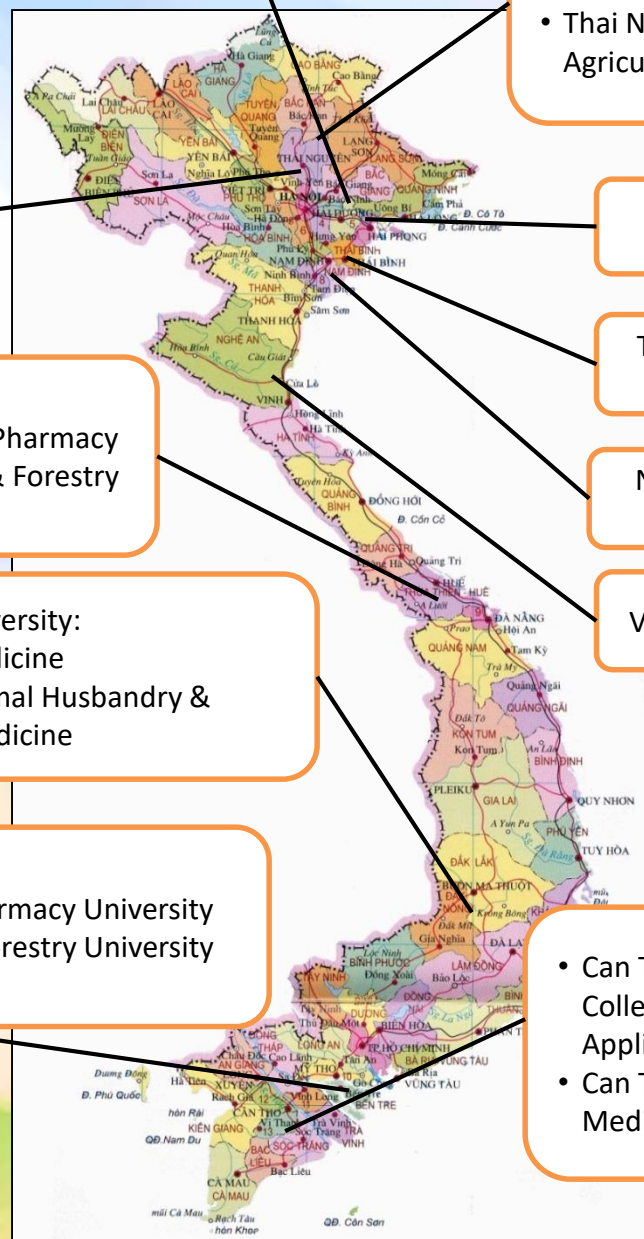
- Hue University of Medicine & Pharmacy
- Hue University of Agriculture & Forestry

Tay Nguyen University:

- Faculty of Medicine
- Faculty of Animal Husbandry & Veterinary Medicine

- Hochiminh City Medicine & Pharmacy University
- Hochiminh City Agriculture & Forestry University

- Can Tho University: College of Agriculture & Applied Biology
- Can Tho University of Medicine & Pharmacy



VOHUN  
20 Universities and 21 Faculties

# Viet Nam One Health Partnership for Zoonoses



- Launched in March 2016, built on Partnership on Avian and Human Influenza (PAHI) established in 2006
- 27 members

## Overall Goal

- To enhance the interface of Viet Nam

Similar structure in other countries: Indonesia, Laos, Thailand, Mongolia... with variable levels of efforts and commitments

(\*including livestock, wildlife and other animal species)



# One Health and Ecohealth in South Asia

- Several One Health and Ecohealth projects (India, Bangladesh, Nepal, Bhutan...)
- AMR, zoonoses, dairy, ruminants
- South Asia One Health degree training (MSc) with NZ
- PHFI, ICAR, ICMR – adoption of transdisciplinary approach

# Outline

1. Context in Asia
2. Major OH/EH programs in (SE) Asia
3. Some evaluations and impacts
4. Reflections and conclusions



# Evaluation of IDRC's funded ecohealth research in Southeast

## Asia and China from 2005 to 2017

- Principle investigators and research implementers are the “next-user” group of the IDRC's funding
- Over the last 12 years ( 2005 – 2017), the IDRC's funding has increased the capacity of the group of principle investigators and research implementers.
- This would ensure the sustainability of the integrated approach projects in the region.
- The challenges implies a more local and flexible adaptation of holistic approach

Change of PI and researchers

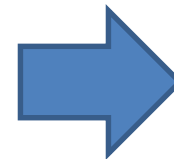
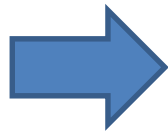
In-depth interviews with 22 PI and others

Interviews i) *past experiences of participant with ecohealth research* and ii) *participant's current projects/programs and how ecohealth research have influenced participant's career pathway* .

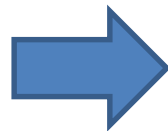


# Researchers' social capital and networking activities

*"I have submitted two proposals on anti-microbial resistances with partners from Vietnam and China to two different sources of funding. I knew them from the time we collaborated with each other in the ecohealth programs. Although, I got only one funded, I found this way of work effective because international donors, now, look for solutions for issues at regional scale."* (Participants from Laos)



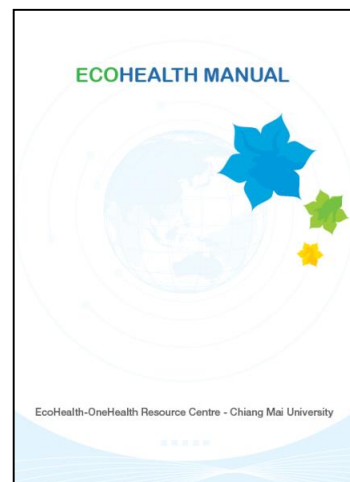
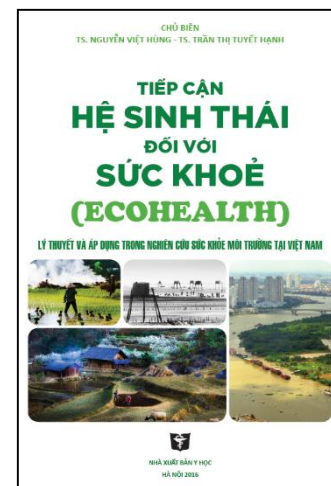
**One Health, AMR**



**AMR, Food Safety**

# Capacity building, training, university 'changes'

- Ecohealth Resource Centres (EHRCs) in CMU and UGM
- Short courses
- Degree training
- Future leaders training
- Curricula development at university



# FBLI Vietnam: Operational research on animal waste management



**SỬ DỤNG VÀ BẢO QUẢN THIẾT BỊ KHÍ SINH HỌC (BIOGAS) ĐÚNG CÁCH LÀ BẢO VỆ MÔI TRƯỜNG VÀ SỨC KHỎE CỦA BẠN!**

## Good practice pig-farm

- Saving time, water, electricity, money
- More gas for cooking
- Less smell, flies
- Improving personal hygiene practice
- More friendly
- Increasing productivity



# Major conference and policy advocacy



**USAID**  
FROM THE AMERICAN PEOPLE



World Health  
Organization



**BMJ**



**CORDS**  
Connecting Organizations for  
Regional Disease Surveillance





INFECTIOUS DISEASES  
OF POVERTY

## Thematic Series

### EcoHealth and EIDs

- Dynamics between environmental change, development, and EIDs in Asia

**Edited by:** Dr. Delia Grace, Dr. Fred Unger, Prof. Xiao-Nong Zhou  
Collection published: 7 May 2014

Emerging infectious diseases (EIDs), such as avian influenza (H7N9), severe acute respiratory syndrome (SARS), and dengue have potential to cause epidemics and pandemics. Southeast Asia and China, where some of these diseases were first recognized, are considered as global



"hot spots" for disease emergence. Increases in the rate of emergence of diseases in this region imply conventional approaches to disease emergence are not working. New approaches, such as EcoHealth, that shift from silo thinking to transdisciplinarity, aim for more effective prevention and control of EIDs. The last decade has seen major initiatives to implement EcoHealth in the region.



### Thematic Series

#### Research Article [Open Access](#)

Socio-economic determinants for malaria transmission risk in an endemic primary health centre in Assam, India

Kavita Yadav, Sunil Dhiman, Bipul Rabha, PK Saikia, Vijay Veer Infectious Diseases of Poverty 2014, 3:19 (24 June 2014)

#### Scoping Review [Open Access](#)

Surveillance-response systems: the key to elimination of tropical diseases

Ernest Tambo, Lin Ai, Xia Zhou, Jun-Hu Chen, Wei Hu, Robert Bergquist, Jia-Gang Guo, Jürg Utzinger, Marcel Tanner, Xiao-Nong Zhou Infectious Diseases of Poverty 2014, 3:17 (27 May 2014)

#### Research Article [Open Access](#)

Knowledge of, attitudes towards, and practice relating to schistosomiasis in two subtypes of a mountainous region of the People's Republic of China

Lu Liu, Guo-Jing Yang, Hong-Ru Zhu, Kun Yang, Lin Ai Infectious Diseases of Poverty 2014, 3:16 (7 May 2014)

## Research and training partnership to assist policy and capacity building in improving food safety in Vietnam



- Vietnam National University of Agriculture
- Hanoi University of Public Health
- Local authorities in Hung Yen and Nghe An
- Involved various Value chain actors and groups

# Interactions with policy makers: Policy translation: food safety



2011 Meeting with VFA  
Photo: CENPHER



2012 Meeting with DAH  
Photo: CENPHER



2016

Meeting with DPM Vietnam, 2 Dec 2016  
Photo: Tuyet Hanh



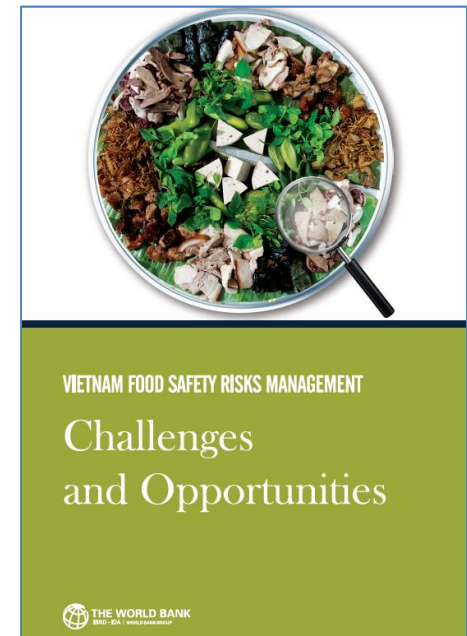
2018

Meeting with DPM Vietnam, 18 April 2018  
Photo: World Bank



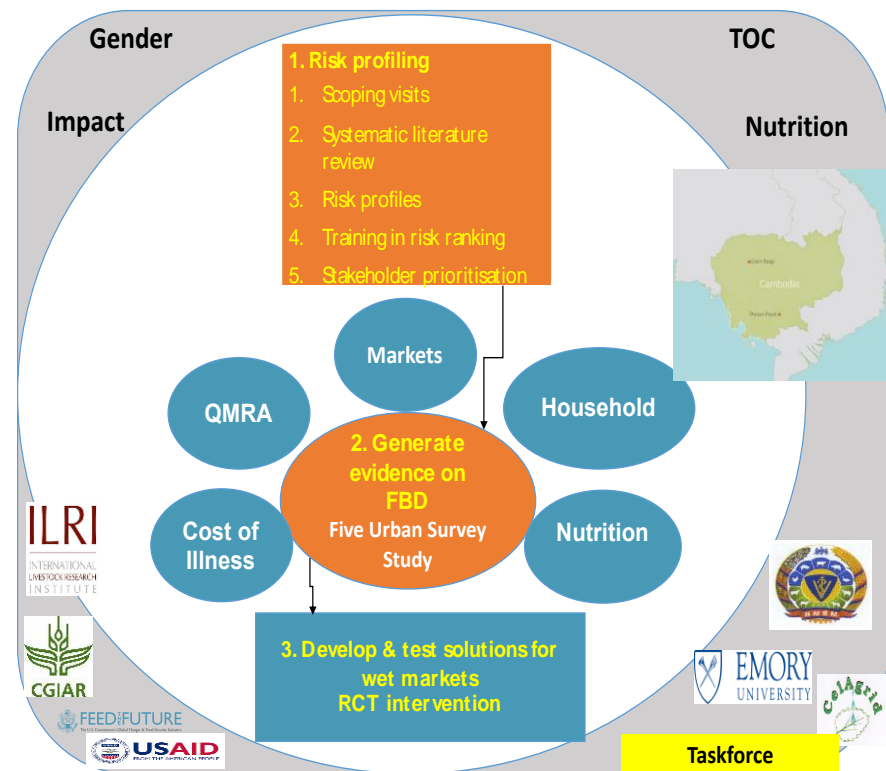
# Policy impact: translational research for interventions in modernizing food system

- CGIAR/ILRI niche - risk assessment and policy / regulatory analysis for fresh foods in domestic markets
- World Bank convenes overall support to government: ILRI led technical works
- Upcoming projects based on WB report we led will improve food safety for 20 million people in 3 major cities of Vietnam



# Safe Food, Fair Food for Cambodia

## Taskforce – December 2017





# Savanakhet, Laos

## Foodborne parasitic disease research Oct 2017

**Decision makers**

**Public  
health  
(MD,  
army  
health)**

**Scientists  
Vets**



# Outline

1. Context in Asia
2. Major OH/EH programs in (SE) Asia
3. Some evaluations and impacts
4. Reflections and conclusions

# Paradigm shift: from proactive support of donors to competitive process for funding

- Ecohealth projects in SEA: financially supported by IDRC, and AusAID, the WHO and the SDC.
- The sustainability is questionable
- A pragmatic response by partners has been to brand themselves as both Ecohealth and One Health.
- Making grant modes from donors: non competitive vs. competitive
- Funding mobilization from other donors including national funding is needed

# Reflections on Ecohealth/ One Health implementation in SE Asia

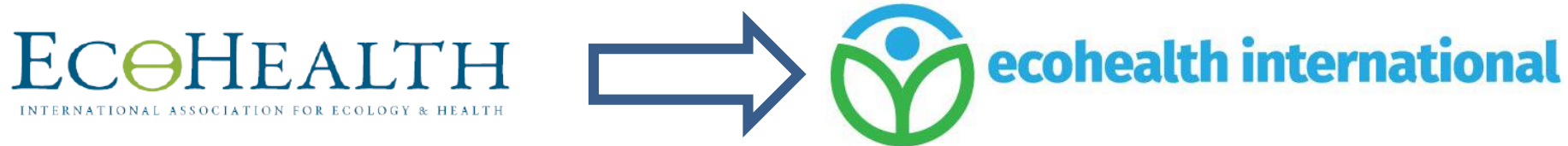
- **“Competitive”** networks of **Ecohealth** and **One Health** in SEA and **donor driven** and **weak sustainability**
- Complementarity : **EIDs** vs. **non EIDs**
- **How much OH/ecohealth** in OH/EH projects: integrative research → operating criteria of Ecohealth/OH
- Improving the translation of evidence and research into policy, more cases to show **added values of One Health/Ecohealth**
- How best to **share credit** among OH/EH team members
- **Deeper coordination** between sectors on human and animal (and wildlife) health and the environmental agencies (also plant health)

# References

- **Nguyen-Viet, H.** et al (2018). Research and training partnership to assist policy and capacity building in improving food safety in Vietnam. *Global Food Security*
- Pham, G., S. Lam, T. Dinh-Xuan and **H. Nguyen-Viet** (2018). "Evaluation of an Ecohealth Approach to Public Health Intervention in Ha Nam, Vietnam." *J Public Health Manag Pract* 24 S36-s43.
- **Nguyen-Viet, H.**, S. Doria, D.X. Tung, H. Mallee, B.A. Wilcox and D. Grace (2015). "Ecohealth research in Southeast Asia: past, present and the way forward." *Infect Dis Poverty* 4: 5.
- Richter, C.H., J.A. Steele, H. **Nguyen-Viet**, J. Xu and B.A. Wilcox (2015). "Toward Operational Criteria for Ecosystem Approaches to Health." *Ecohealth* 12(2): 220-6.
- **Nguyen-Viet, H.**, J. Zinsstag, R. Schertenleib, C. Zurbrugg, B. Obrist, A. Montangero, N. Surkinkul, D. Kone, A. Morel, G. Cisse, T. Koottatep, B. Bonfoh and M. Tanner (2009). "Improving environmental sanitation, health, and well-being: a conceptual framework for integral interventions." *Ecohealth* 6(2): 180-91.
- **Nguyen-Viet, H.** et al. (2015). Institutional research capacity development for integrated approaches in developing countries: an example from Vietnam. In J. Zinsstag, E. Schelling, D. Waltner-Toews, M. Whittaker & M. Tanner (Eds.), *One Health: The Theory and Practice of Integrated Health Approaches*. CAB International, Wallingford, UK.



# EcoHealth = Ecosystem approaches to health



**Environment**



**Health**



**Sustainability**



**Research**

[www.ecohealthinternational.org](http://www.ecohealthinternational.org)

# Acknowledgement



Swiss TPH



RESEARCH  
PROGRAM ON  
Agriculture for  
Nutrition  
and Health

Led by IFPRI



OneHealth  
WORKFORCE

niger  
north  
south



Australian Government

Australian Centre for  
International Agricultural Research



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Swiss Agency for Development  
and Cooperation SDC



WORLD BANK GROUP



USAID  
FROM THE AMERICAN PEOPLE



THE UNIVERSITY OF  
SYDNEY



Network  
for Evaluation  
of One Health